Modernization and Household Composition in India, 1983-2009

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Abstract

Are urbanization, industrialization and educational expansion linked to household nucleation in India in recent decades? To answer this question, the current study examines national trends in household composition between 1983 and 2009 using data from the National Sample Survey harmonized by IPUMS-International. Results show that the prevalence of nuclear households increased only modestly during this period. Occupational diversification and the decline of farming contributed to this increase, but the same cannot be said of urbanization and educational expansion. Among elderly couples, nuclear households have been more prevalent in rural areas than in urban areas from 1993 onward. Among young couples, nuclear households have been most prevalent among the least educated. These analyses suggest that the strongest driver of household nucleation has not been the emergence of a highly-educated urban elite, but the economic stagnation or relative pauperization of vulnerable segments of the population who have been left behind by modernization.

Introduction

The modernization hypothesis, as classically formulated by Goode (1963), predicted that urbanization, industrialization and educational expansion would cause a worldwide convergence to the western model of small and nuclear households. Although rejected as a global theory of household change (Bongaarts and Zimmer 2002; Thornton 2005; Ruggles and Heggeness 2008; Ruggles 2009, 2010; Cherlin 2012), this hypothesis remains central to household research in several regions and countries. This is notably the case in India, where the nucleation of the Hindu joint household[1] (HJH), a paradigmatic case of the modernization hypothesis, has puzzled social scientists for more than a century (Gait 1913; Allendorf 2013).

Living arrangements in India are at a crucial intersection in the study of demography, gender inequality and intergenerational relationships (Dyson and Moore 1983; Das Gupta 1995;

Agarwal 1997; Mookerjee 2017). A growing literature shows that household composition (e.g., whether a young woman resides with her mother-in-law, or whether aging parents are cared for by coresiding children) is a key determinant of everyday processes that often have far reaching sociodemographic consequences – whether in terms of women's autonomy and reproductive health (Jejeebhoy and Sathar 2001; Bloom et al. 2001; Mistry et al. 2009; Allendorf 2012; Coffey et al. 2016), son preference (Miller 1981; Das Gupta et al. 2003), investments in children (Myroniuk et al. 2017), domestic violence (Fernandez 1997; Bhattacharya 2004), and so on. In this research context, understanding how modernization has transformed the Indian household becomes even more essential.

Yet the literature on household change in India remains divided. Over the past decades, as India continued its economic modernization (Dyson et al. 2004), scholars have simultaneously announced the disintegration of the HJH (Goode 1963; Niranjan et al. 2005; Allendorf 2013) and its rejuvenation (Orenstein 1961; Caldwell et al. 1988; Shah 1998, 1999). Two major issues underpin these conflicting claims. First, scholars have often drawn different prognoses on the fate of the HJH because they have not used the same typologies and measures of household change. Second, their analyses were typically limited by a dearth of precise and long-term microdata on household composition in India.

In this article, I study the relationship between modernization and household change in India in recent decades. In light of prior issues in the literature, my strategy is twofold. First, I review the main concepts and measures used to model residential variations in India. Building on advances in household theory (Verdon 1998) and family demography (Ruggles 2012), I develop an analytical approach and typology that moves beyond the static dichotomy between nuclear and joint households (Uberoi 2004). Second, I apply this framework to study national trends in

household composition between 1983 and 2009 using cross-sectional data from the National Sample Survey (NSS) harmonized by IPUMS-International (Minnesota Population Center 2017). This dataset combines precise measures of household composition with the largest sample size and the longest time frame of all comparable large-scale surveys in India. I ask two overarching empirical questions. One, how rapid was India's modernization during this period? Two, is India's modernization linked to a nucleation of households at the national level?

Overall, as other studies have established (Dyson et al. 2004; Desai et al. 2010; Drèze and Sen 2013), I find that India's industrialization (or occupational diversification) and urbanization have been fairly slow in past decades, whereas its educational expansion has been more rapid. Correspondingly, I find that the prevalence of nuclear households increased only modestly between 1983 and 2009. These results imply that a slow modernization entailed a slow nucleation of the Indian household, but further analyses suggest otherwise. Instead, a complex interplay of countervailing forces within India's modernization explains the absence of a strong national trend toward nucleation. More specifically, occupational diversification and the decline of farming are linked to a rising prevalence of nuclear households, but the same cannot be said of urbanization and the expansion of schooling. Among elderly couples, nuclear households have been more prevalent in rural areas than in urban areas from 1993 onward. Among younger couples, nuclear households have been much more prevalent among the least educated. These analyses suggest that the strongest driver of household nucleation has not been emergence of a highly-educated urban elite, but the economic stagnation or relative pauperization of vulnerable segments of the population who have been left behind by India's modernization.

Conflicting Claims

Early claims of an impending nucleation of the HJH were made in the absence of precise data on household composition. In his report of the 1911 Census of India, Gait compared recent trends in household size between India and England and concluded that the HJH was slowly nucleating owing to "various new factors, such as the growth of individualism, the rise in the standard of living, which makes it increasingly difficult for a large number of people to live together, and increased migration, due to the better means of communication afforded by the railways" (1913: 47). The available historical data now suggests that households in 19th century India were not larger than they were in the first decades of the 20th century (Shah 1998). India then experienced a rise in household size between the 1911 and 1981 census, followed by a decline sharp between 1981 and 2011 (Registrar General 2005, 2011). Demographers have since demonstrated that household size is only a crude approximation of household composition and is highly sensitive to demographic variations (Bongaarts et al. 1987).

As better data became available, often in regional and ethnographic surveys, scholars began measuring the transformation of the HJH using cross-sectional distributions of household types. Many ethnographers measured unexpectedly high proportions of nuclear households in these regional surveys and concluded that the HJH was indeed nucleating. However, as Shah (1974) remarked, a high prevalence of nuclear households does not preclude that most households at some point go through a joint phase. There are also demographic constraints to the number of joint households one can observe at any given point in time (e.g., some couples are childless, some parents die before their children's marriage). To assess whether nuclear households are indeed overrepresented in a given distribution, one needs to specify an attainable

prevalence of HJHs given prevailing demographic rates and age distribution (Burch 1970; Wachter et al. 1977).

Data on this counterfactual, however, are typically not available. A ready alternative has been to anticipate the impact of demographic factors. Orenstein (1961: 349) claimed that the stem family or household "may be a widespread type in India", and that it may constitute "a modification of the nuclear [family] to provide for dependent parents", adding that "the greater age of the present Indian population would likely result in a higher incidence of stem families as against nuclear". Caldwell et al. (1988: 130-131) argued that Indian society "cares for its aged by means of a stem-family system which hitherto has meant a larger number of nuclear than stem families, although with much the same number of people living in each. Now that there is a real possibility that the society will be characterized by low fertility […], the balance might well shift toward a greater number of stem families".

In fact, most scholars from the 1960s onward (including Goode) have not predicted a rapid nucleation of the HJH despite India's ongoing socioeconomic development. Conklin criticized Goode's argument on the "fit" between economic modernization and nuclear households, stating that "there is no empirical evidence to show that a joint family could not provide a good adaptive vehicle for solving the problems of urbanization or industrialization" (1973: 748). He argued that socioeconomic change would not affect the formation of joint households as much as the distribution of social roles within joint households. Shah (1998, 2005) claimed that the transformation of the Indian household is shaped by the countervailing forces of Westernization and Sanskritization. While Westernization describes the diffusion of the preference for nuclear living arrangements stemming from professional urban classes,

Sanskritization describes the process whereby families of lower castes adopt the practices of higher caste groups, including a greater emphasis on the HJH (Srinivas 2002).

As a result, many scholars have claimed that "the joint household seems to have weakened in the urban, educated, professional class" (Shah 1996: 537), or that "education among the young or their increasing ability to secure work elsewhere poses a continued threat of partition, at least as seen by the patriarch; this has meant a reduction in the pyramidal control structure of the classical joint-stem or stem family" (Caldwell et al. 1988: 112). However, others have hypothesized that "while the lifestyles and occupational mobility of the professional middle classes may discourage joint-household living, another section of the urban middle class (for instance, those engaged in business enterprise) may prefer to maintain joint household along with their joint business and property interests" (Uberoi 2004: 283).

In the more recent empirical literature, Niranjan et al. (2005) and Allendorf (2013) measured a sharp rise in the prevalence of nuclear households in India during the last two or three decades. Using data from India's National Family Health Survey (NFHS), they both found nuclear households to be positively associated with urban residence and negatively associated with wealth, although their findings on the effect of education do not converge. By contrast, using nationally representative samples of elderly individuals and couples (aged 65 and over), Bongaarts and Zimmer (2002) and Ruggles (2010) did not observe any clear trend toward nucleation in India in recent decades; they also found that key indicators of socioeconomic development were only weakly correlated to changes in household size and composition.

Cross-Sectional and Longitudinal Approaches to Household Change

Conflicting claims on the nucleation of the HJH largely stem from the different samples and conceptual approaches that scholars use to model residential variations. More specifically, the prior review highlights at least three approaches to define the transformation of the HJH. In this section, my goal is to elicit a common ground between some of these approaches.

The first approach defines household change as a transformation in patterns of intraresidential interactions, especially power relationships. This approach predicts that a modern and more egalitarian HJH will eventually replace the patriarchal, traditional HJH. In this perspective, as Conklin intuited, household change may occur without large shifts in composition. To measure such a change, one therefore needs a typology that distinguishes households with same membership but with broadly different patterns of internal interactions. For instance, this could be accomplished by reporting headship patterns within each household type (e.g., by distinguishing joint households with a senior head from those with a junior head), assuming that headship is strongly correlated with authority within the household. The NSS dataset used in this paper does not permit to study this aspect of household change, as its definition of headship does not support this assumption[2].

The second approach defines the nucleation of the HJH as a series of increase in the cross-sectional prevalence of nuclear households. This measure can be computed with relative ease, but it entails two key analytical problems. First, cross-sectional distributions of household types are highly sensitive to a population's age and marital composition. Demographic factors may increase or decrease the number of kin available for coresidence in HJHs, thereby causing variations in the prevalence of HJHs in the absence of genuine changes in patterns of household formation. Second, cross-sectional measures may obfuscate the fact that households are

inherently dynamic entities undergoing various developmental trajectories of growth and decline. Many scholars have argued that these developmental sequences are in fact more legitimate objects of analyses than the static distributions they encompass (Netting et al. 1984).

Hence the third and more longitudinal approach is to measure changes in the HJH's developmental cycle (Fortes 1958). However, this approach also entails problems on two fronts. First, there is no nationally representative longitudinal dataset on residential processes in India. Second, the concept of developmental cycle as initially defined by Fortes implies that most individuals in a given population follow similar matrimonial and residential trajectories (Shah 1974; Verdon 1998). Because these trajectories are often very diverse, it is not clear how to define a standard developmental cycle against which to measure changes (D'Cruz and Bharat 2001). To address this second problem, Verdon created the more general concept of *limit of residential growth*, which he defined as "a boundary beyond which [households] will not grow, or will grow only under exceptional, or abnormal, circumstances" (1998: 42). In the Indian context, this means that the HJH may be a limit of growth in some regions of the countries or in some socioeconomic strata, but not in others (Kolenda 1987).

This concept of limit of residential growth entails a key nuance to the definition of the HJH, namely the distinction between temporary and permanent intergenerational coresidence. Cases of neolocal residence (where a couple sets up its own household immediately after marriage) are very rare in India. After their marriage, sons may remain in their parents' house for a few months or up to multiple years, often until they have amassed enough resources to build their own house. They may move to and from their natal household through circular labor migrations. They may also be allowed to separate only after the marriage of their sibling(s).

There are even cases of parents rotating between their married sons' households to assuage domestic tensions (Caldwell et al. 1988; Shah 1998).

In contrast to these cases of temporary intergenerational coresidence, the ethnographic literature also highlights more permanent ones. Shah (1998) wrote of the pressure placed on only sons to coreside with their parents until their death. In some settings, the youngest son receives a larger or preferential share of the family property as a compensation for looking over his elderly parents while coresiding with them (Mandelbaum 1970; Caldwell et al. 1988). In India, temporary intergenerational coresidence is therefore broadly associated with premortem household partition (before the father's death), whereas permanent intergenerational coresidence tends to be associated with postmortem household partition (after the father's death). This distinction is essential.

Insofar as the HJH is a limit of residential growth in some regions or social strata in India, I argue that it should be defined as form of permanent coresidence[3]. This means that the nucleation of the HJH can first and foremost be measured through rising rates of premortem residential partition[4]. At a local level, this is best accomplished using a combination of ethnographic and longitudinal data. At a larger scale, however, options are more limited because most nationally representative datasets are cross-sectional. Given these limitations, the most reliable alternative (Ruggles 2012) remains to interpret long-term trends in household composition in selected age groups, namely from the standpoint of young married adults whose parents are still alive or from the standpoint of older couples whose children are married.

Measures of Living Arrangements

Married couples are the most pertinent denominator for analyses household change in India: they form the core membership of joint households, and marriage is virtually universal in India. This article focuses solely on the living arrangements of coresiding married couples. Following the methodology set out by Ruggles (2012), I analyze the living arrangements of young couples (with a husband between ages 30 and 39) separately from those of elderly couples (with a husband aged 65 and over)[5]. I select these two age groups because I assume them to be the most exposed to the risk of premortem residential partitions; by contrast, middle-aged adults are more exposed to postmortem partitions and delays in marriage. In the absence of data on kin availability, I assume that most young couples are old enough to be capable of living on their own, but young enough to have surviving parents with whom they could alternatively coreside. Correspondingly, I assume that most elderly couples are old enough to have married children capable of living on their own, but with whom they could also coreside.

As detailed in Table 1, I study the relative distribution of five major household types: 1) nuclear, 2) nuclear plus widowed parent (hereafter supplemented-nuclear), 3) stem, 4) joint, 5) and a residual category. Virtually all family scholars define the nuclear household as a group formed around the coresidence of a couple with or without their unmarried children. They also distinguish such nuclear households from those with a widowed parent (or supplemented-nuclear household).

[TABLE 1 HERE]

While some scholars disagree on the need to distinguish between stem and joint households in the Indian context, I argue that broad contrasts in the determinants and prevalence

of these two types strongly motivate this distinction. In the ethnographic literature, cases of permanent coresidence between a married man and two or more of his married sons (i.e. joint households) are mostly seen as arrangements for upward socioeconomic and caste mobility. By contrast, households where a married man coresides with only one of his married son (i.e. stem households) are mostly viewed as arrangements to ensure that parents receive adequate care in their old age (Caldwell et al. 1988; Uberoi 2004). As a result, the coresidence of married brothers, even if held as an ideal in India, is rare (either before or after the father's death).

Yet stem households in India cannot be directly assimilated to Le Play's conception of the stem family. In historical Europe and North America, the stem household was part of a wider system of practices typically associated with individual property, impartible inheritance, and strategies of heirship (Verdon 1979, 1987, 1998). By contrast, households in India are tied to the practice of corporate ownership and partible inheritance of the family (or ancestral) property. In most of India, an individual has an inalienable right to a *per stirpes* share of any property inherited by his or her father, although this right is rarely enforced in the case of women (Agarwal 1994, 1997). Given these important differences in devolution practices, it is perhaps preferable to write of "stem-like" households in the Indian context. For simplicity's sake, however, I continue to use the term stem household in this paper.

The distinction between stem and joint households is central for understanding limits of residential growth in India. The available evidence suggests that permanent joint household are mostly found among upper caste or class families, whereas permanent stem households are more prevalent in the general population (despite substantial regional variations; Kolenda 1987). Importantly, there is no historical evidence documenting a progressive dissolution of joint households into nuclear households with stem households serving as an intermediary stage. In

other words, an increase in stem households relative to joint ones does not mean that the HJH is nucleating, nor does a rise in stem households relative to nuclear ones signify a rejuvenation of HJH. To properly assess the direction of changes in limits of residential growth in India, all three household types must be considered in relation to one another.

Applying these conceptual nuances, I use cross-sectional distributions of household types to examine two types of residential changes in India. First, I treat changes in the relative prevalence of nuclear to stem and/or joint households as indicators of changes in rates of premortem residential partitions. Second, I treat changes in the relative prevalence of stem to joint households as indicators of changes in limits of growth happening independently of residential nucleation. As mentioned previously, I compute these measures for both young and old generations, as they tend to be affected by demographic changes in opposite ways:

> For the younger generation, ongoing demographic changes *increase* the opportunities to reside with parents. Mortality decline increases the chances that an adult will have a surviving parent. Fertility decline, however, is even more relevant. A smaller group of adult children for each elderly parent increases the chances that any particular child will coreside with a parent. … [For the older generation,] fertility decline means that the elderly have fewer children with whom they can reside. Mortality decline increases the survival of children to adulthood, but this effect is generally small relative to the drop in births. All things being equal, one would expect that a drop in the number of available children would reduce the potential for coresidence, but there is some evidence that the impact is relatively small (Ruggles and Heggeness 2008: 256; italics original).

Data and Sample

I use data from six rounds of India's National Sample Survey (NSS) on employment and unemployment held at approximately five-year intervals between 1983 and 2009. All samples are harmonized and made available by IPUMS-International (Minnesota Population Center 2017). This harmonized dataset combines the largest sample size, the longest time frame, and the

most precise measures of household composition of all comparable large-scale surveys in India. It also includes sample weights that can be used to compute nationally representative estimates of several demographic and socioeconomic indicators. To further assess the validity of the NSS estimates, I provide an appendix replicating my results using two other large-scale, nationally representative surveys on Indian households, namely the National Family Health Survey (NFHS) and India Human Development Survey (IHDS).

The NSS offers a *de jure* sample of the non-institutionalized population, defining the household as the group of people who normally reside together under the same roof and take food in the same kitchen (Bender 1967). I delineate household types using the family pointers developed by IPUMS-International (Sobek and Kennedy 2009).

Socioeconomic Trends

Tables 2 and 3 present the demographic and socioeconomic characteristics of young and elderly couples between 1983 and 2009. (I present these statistics for both husband and wife, but I carry out the upcoming analyses using only the husband's characteristics, as analyses by the wife's characteristics presented either very similar or weaker results.) These descriptive results show that India's modernization has been relatively slow in the past decades. These trends are largely consistent with those reported in the Indian census and other studies of socioeconomic change (e.g., Dyson et al. 2004; Desai et al. 2010; Drèze and Sen 2013). They also show that India's modernization has had slightly different implications for young and elderly couples.

[TABLE 2 HERE]

[TABLE 3 HERE]

Among younger couples (Table 2), urbanization has been very slow, having increased by only 3.5 percentage points over 25 years. Industrialization, as measured by the changing occupational structure[6], has been more rapid. The most notable occupational changes have been the decline of family faming (from 31.8 to 24.5 percent) and the increase in employment in the family business (from 17.3 to 23.81 percent). Despite large oscillations, daily labor and salaried jobs also appear to be on the rise (although not decidedly so), gaining more than 4 percent over 25 years. Unemployment fluctuates between roughly 3 and 4 percent every year, with the exception of 2009 where it sits at 0.6 percent (an exceptionally low figure that must be interpreted cautiously). Small increases in the mean age of both spouses reflect India's ongoing population ageing. Overall, the most salient socioeconomic change among young couples has been the expansion of schooling. The proportion of married young men with less than a primary school degree decreased by almost 50 percent. This increase in educational attainment has been even more pronounced for women, thereby narrowing the gender gap in education – although this gap remains large even in 2009.

Among elderly married couples (Table 3), urbanization has been slightly more rapid, which could partly reflect the higher life expectancy of urban dwellers. Relatedly, the average age of elderly married men has not increased since 1983, but their wife's age has increased by almost three years, potentially a result of women's larger gains in life expectancy. Both husband and wife have made substantial gains in education, although somewhat less markedly than among younger couples. Employment in the family farm, business or in the labor market remained fairly stable among elderly couples (aside from a decline in farming in 2009). The largest socioeconomic changes occurred among retirees and the economically inactive: the proportion of elderly married men retired with a rent or pension more than quadrupled over 25

years, whereas the proportion of inactive elderly with neither rent nor pension has decreased by roughly a third.

Analyses of Trends in Living Arrangements

How are these socioeconomic trends associated with household change? To answer this question, the upcoming figures show nationally representative estimates of trends in household composition, for young and elderly couples, by urban residence and by husband's occupation and education. While these analyses are strictly descriptive, I briefly explore alternative hypotheses of trends in household composition that contradict the modernization hypothesis. I also anticipate the effect of India's ongoing fertility and mortality declines on trends in living arrangements, following Ruggles' (2012) demonstration that household variations are largely influenced by demographic factors.

National Trends

Figure 1 presents national trends in household composition between 1983 and 2009 for young and elderly couples. On the whole, patterns of household composition have been remarkably stable during this period, a key finding considering India's slow but steady economic modernization in the last three decades. This does not mean, however, that the Indian household has been stationary. As the historical literature shows, some household changes can be slow yet seemingly irreversible in the long run (Ruggles 2007).

[FIGURE 1 HERE]

Among young couples, there was no clear trend toward household nucleation; the rise in the prevalence nuclear households observed between 1983 and 1993 is followed by a commensurate decline up to 2004. Steadier changes are under way among elderly couples, for whom the prevalence of nuclear households increased by more than 6 percentage points over 25 years, reaching in 2009 a proportion nearly equal to that of stem households.

To examine these variations in more detail, Figure 2 shows trends in the ratio of nuclear to stem and joint households, as well as in the ratio of stem to joint households, for young and elderly couples. Among young couples, the ratio of nuclear to stem and joint households sharply decreased between 1993 and 2009 (from 3.85 to 2.75). By contrast, between 1983 and 2009, this ratio increased by nearly 20 percent among elderly couples (from 0.64 to 0.76). As noted decades ago by Orenstein (1961) and Caldwell et al. (1988), stem households are much more prevalent than joint ones among both young and elderly couples. The ratio of stem to joint households is also increasing over time, especially from the standpoint of elderly couples.

[FIGURE 2 HERE]

I hypothesize that fertility and mortality decline play a major role in explaining household trends among young couples. Fertility decline in India began sometime between the mid-1960s and mid-1970s; India's total fertility rate dropped from 6.5 children per women in the 1960s to roughly 3.5 children per woman in the 1990s (Dyson et al. 2004). Given a lag of 20 to 30 years after the onset of fertility decline, this means that men married from the 1990s onward have on average fewer brothers than men in prior marriage cohorts, thereby increasing their probability of coresiding with their parents. Similarly, there is indirect evidence that mortality decline has had a substantial impact on the living arrangements of young couples. The declining

ratio of nuclear to stem and joint households is linked to a sharp increase in stem households, which was symmetrical to a decrease in supplemented-nuclear households (likely a consequence of India's rising life expectancy). This suggests that rates of postmortem residential partition are decreasing among young couples because their parents live longer. However, these results do not provide strong evidence that rates of premortem partition are either increasing or decreasing at younger ages.

The effect of mortality and fertility decline on the living arrangements of elderly couples is likely less important. The role of mortality decline should be minimal because measures of living arrangements for elderly couples are conditional on survival to age 65. Fertility decline may be linked to increases in the prevalence of nuclear households (because more couples are childless) and in the ratio of stem to joint households (because more couples have only one son). This is consistent with numbers observed on Figure 2, although many scholars have argued that the effect of fertility decline on the living arrangements of the elderly tends to be marginal (see Ruggles and Heggeness 2008). Moreover, the completed family size of India's elderly cohorts between 1983 and 2009 remains high (Spoorenberg 2010).

Delays in marriage could also explain the increase in nuclear households among elderly couples. Between 1983 and 2009, the NSS data shows that the singulate mean age at marriage increased from 23.1 to 25.5 years for men, and from 18.3 to 21.3 years for women (author's own calculation). Rising age at marriage, especially among men, may have increased the cross-sectional prevalence of nuclear households without having increased the rates of premortem partition among married couples. However, I do not expect these delays to completely explain the rising prevalence of nuclear households among the elderly, chiefly because the distance between generations is relatively short in India. In support of this claim, I still measure an

increase of six percentage points in the prevalence of nuclear households among elderly couples aged 70 or more.

Overall, taking all relevant demographic information into account, the results presented in Figures 1 and 2 suggest that rates of premortem household partition are stable among young couples, but are modestly increasing among elderly couples. This increase, however, does not reflect a fundamental change in limits of residential growth at the national level. Nuclear households may slowly be on the rise in India, but stem and joint households have by no means become abnormal or exceptional occurrences. Moreover, there is no evidence that joint households are being progressively divided into stem ones; insofar as this conclusion is valid for all major socioeconomic categories, the upcoming analyses focus solely on whether stem and joint households are nucleating in key segments of the population.

Trends by Rural and Urban Residence

Does urbanization predict household nucleation in India? The short answer is, no. As shown in Figure 3, the urban-rural gap in household composition in India is neither large nor expanding. Among young couples, this gap was once sizeable but has narrowed considerably after 2004. More importantly, trends at older ages go directly against the modernization hypothesis. Among elderly couples, rural households have become more predominantly nuclear than urban households from 1993 onwards.

[FIGURE 3 HERE]

Demographic factors could partly explain the absence of a strong urban trend toward household nucleation among young couples, but not among elderly couples. In India, fertility and

mortality have long been lower in urban areas, while age at marriage is typically lower in rural areas (IIPS and ICF 2017). As a result, the probability of forming nuclear households in urban relative to rural areas should be lower at younger ages, but higher at older ages. In the absence of demographic change, the prevalence of nuclear households among rural elderly couples would thus have been higher.

This means that variables other than demographic ones are at play in explaining the rural-urban gap in living arrangements among elderly couples. A theme often echoed in the ethnographic literature is that older couples in rural areas find it increasingly difficult to recruit their sons in joint residential and economic ventures. This could stem from the increasing attractiveness of urban employment among the rural youth (Dandekar 1986), although rural-urban migrations cannot entirely explain this trend (urbanization among young couples has been comparatively slow). Among other plausible hypotheses, studies have suggested that obstacles to the premortem residential partition of young couples in rural areas have been slowly lifted in recent decades (Caldwell et al. 1988; Attwood 1992); this could be a consequence of fathers' decreasing bargaining power vis-à-vis their married son(s). By contrast, rising housing costs and population density in cities could have increasingly hindered the ability of young urban couples to form independent households (Ruggles and Heggeness 2008).

Trends by Husband's Occupation

Figures 4 and 5 present trends in living arrangements by husband's age and occupation. Does occupational diversification and the decline of farming predict household nucleation in India? The short answer is, yes. Among young couples, the prevalence of nuclear households is

highest in occupations other than family farming. In comparison to farmers, the prevalence of nuclear households is roughly 10 percentage points higher among workers employed in a family or self-own business, and 20 percentage points higher among salaried workers.

[FIGURE 4 HERE]

[FIGURE 5 HERE]

Among elderly couples, the prevalence of nuclear household is highest for couples whose husband receives either a salary or a rent. By contrast, stem and joint households are most prevalent among old couples whose husband is inactive or unemployed; this is in accord with the claim that intergenerational coresidence may serve to ensure that elderly parents receive adequate care when they are unable to work or other fend for themselves (Das Gupta 1999). However, between 1999 and 2009, the proportion of nuclear households among old farmers increased rapidly and began to exceed that of stem households. As discussed previously, this result suggests that elderly farmers are less and less able to recruit their married son(s) in joint economic and residential ventures.

Overall, occupational differences in living arrangements are consistent with the modernization hypothesis and are not the result of demographic factors (as there is ample demographic heterogeneity within occupational categories). The impact of industrialization on household nucleation operates mainly through a compositional effect, meaning that the increase in nuclear households is associated with a shift away from occupations in which nuclear households are the least prevalent. However, because occupational diversification has been comparatively slow in India, especially among young couples, industrialization not produced at strong trend toward nucleation at the national level.

Trends by Husband's Educational Attainment

Figures 6 and 7 present trends in living arrangements by husbands' age and education. Among young couples, educational differences in household composition are very pronounced and run counter to predictions of the modernization hypothesis. The proportion of nuclear households is much higher (on average 15 percentage points) among less educated couples than among college-educated couples. What is more, this gap has increased over time: the proportion of nuclear households among less educated couples rose by more than 10 percentage points between 1983 and 2009, whereas it slightly decreased among college-educated couples. These results suggest that economic stagnation, or even pauperization (in relative terms) occurring among the least educated, are potent drivers of household nucleation among young couples. That is, the highest rates of household nucleation are not found among those who are at the forefront of modernization, but among those who have been left behind by recent economic advances. This trend cannot be detected at the aggregate or national level because couples with less than a primary school education form a rapidly decreasing share of India's population.

[FIGURE 6 HERE]

[FIGURE 7 HERE]

Among elderly couples, the association between educational attainment and household composition is positive, as predicted by the modernization hypothesis, but less pronounced. There are virtually no differences between the living arrangements of elderly couples with less than a primary school degree and those with a primary or a secondary school degree. The gap in the prevalence of nuclear households between the least and most educated elderly couples is

small (roughly 5% on average), and further analyses show that this gap is largely the result of occupational differences. More precisely, elderly married men with a college education are much more likely to be rentiers or pensioners than their less educated counterparts. For instance, in 2009, roughly 70% of elderly college-educated married men were retired with a rent or pension, compared to 12.5% among those with less than a primary education.

In both age groups, educational differences in household composition may be partly due to demographic factors. In India, higher education is associated with lower fertility and mortality, and higher age at marriage (IIPS and ICF 2017); these parameters are associated with a higher risk of intergenerational coresidence from the junior generation's standpoint, and vice versa from the senior generation's standpoint. However, because even the least educated experienced sharp mortality and fertility declines in the past decades (IIPS and ICF 2017), demographic factors alone are likely not sufficient to explain the large and growing educational gap in living arrangements observed among younger couples.

To further explore this claim, Figure 8 details trends in living arrangements for young couples by husband's occupation and education. The negative association between household nucleation and husband's education (at younger ages) holds even after controlling for husband's occupation. Furthermore, if nuclear households have been most prevalent among less educated salaried workers, the largest increases in nuclear households occurred among their counterparts employed on the family farm or in the family business. Notably, from 2004 onward, the prevalence of nuclear households has been higher among less-educated farmers than among college-educated salaried workers.

[FIGURE 8 HERE]

To the extent that demographic factors do not entirely explain educational differences in household composition, economic factors likely play an important role. In this regard, a key hypothesis in the literature is that poor and less educated people often need to migrate to find employment, a practice often preventing the formation of permanent stem and joint households (e.g., Pearlman et al. 2017). However, the role of migration must not be overstated. The NSS collected data on household migrations in 1983, 1987 and 1999. While these data only measure permanent household migrations as opposed to more temporary moves (such as seasonal labor migrations), they do not show that less educated people are more mobile than their more educated counterparts – in fact, the opposite seems to prevail[7]. These results suggest that educational differences in living arrangements are not mainly driven by the higher mobility of less educated couples.

Hence another economic explanation could be that incentives in favor of joint coresidence, or deterrents against premortem residential partition, are greater in wealthier and more educated families (Attwood 1992). For instance, parents in more educated families may have more economic resources at their disposal to convince their married son(s) to collaborate in joint economic ventures, especially in comparison to poor farmers. Similarly, having more resources may give them a higher bargaining power, helping them thwart the claims of a married son asking for partition to form his own household.

Yet there are significant variations in the prevalence of joint and stem households even among less-educated couples. Young workers with less than a primary education employed outside of farming have the lowest prevalence of joint (less than 3% on average) and stem (less than 7% on average) households of all major socioeconomic categories studied in this paper. These numbers strongly suggest that permanent joint and stem households are not limits of

residential growth in this group; instead, supplemented nuclear households are a more likely limit. By comparison, among young farmers with less than a primary education, the average prevalence of joint (roughly 7%) and stem (12%) households is nearly twice as high, suggesting that their limit of residential growth reaches at least the permanent stem level.

Discussion

On balance, modernization has not caused the nucleation of India's stem and joint household in recent decades. Instead, the results presented in this paper highlight the stability of living arrangements in India between 1983 and 2009. During this period, despite India's ongoing modernization, the prevalence of nuclear households increased only modestly. This trend signals a marginal increase in rates of premortem residential partitions (mostly visible from the standpoint of older age groups) but does not reflect a fundamental change in patterns of household formation and composition for the country as whole. The fact that the prevalence of stem and joint households remained almost constant over time, and even increased in younger age groups, further supports this conclusion.

This does not mean that the Indian household has been inert and stationary. Accordingly, this study shows that India's modernization is not a unitary force prompting a steady convergence toward nuclear households, but instead hides multiple countervailing forces that both foster and curtail household nucleation. The decline of farming and the rise of retirement pensions have likely contributed to an increase in nuclear households, but these occupational changes have been relatively slow and thereby have not led to large shifts in household composition at the national level. Urbanization has not led to a rapid increase in nuclear

households in urban areas, but is linked to a transformation of residential processes within rural areas – such as the increase in household nucleation among elderly rural couples. Educational expansion has not led to higher rates of household nucleation among young couples, because household nucleation has long been highest among the least educated – who now form a declining share of the population. A striking outcome of these competing trends is that nuclear households have recently become more prevalent among young uneducated farmers than young college-educated salaried workers. This implies that the strongest driver of household nucleation in India has been the relative deprivation of vulnerable segments of the population left behind by modernization, not the emergence of a highly-educated professional urban, or westernized, elite.

These trends run counter to many predictions of the modernization hypothesis, but they also indicate that modernization remains a relevant parameter of household change and stability in India. In this regard, the current study elucidates a long-standing debate in the literature on Indian households, but also asks new questions. More specifically, future research should investigate why nuclear households are increasingly prevalent in low socioeconomic strata, but also why stem and joint households continue to thrive in high socioeconomic strata.

Yet these results must also be interpreted cautiously. Cross-sectional distributions of household types also do not allow us to definitely distinguish temporary stem and joint households from permanent ones. The NSS data does not provide information on kin availability for coresidence, which makes it difficult to measure to which extent changes and socioeconomic differences in household composition are entirely driven by demographic factors; it also does not precisely measure patterns of intergenerational and gender interactions within households, thereby not addressing the hypothesis that stem and joint households in India are becoming more egalitarian. Despite these limitations, the findings presented in this paper are robust to alternative

specifications and have been replicated using nationally representative datasets from other major Indian surveys (see Appendix).

On balance, the current study justifies moving beyond the overarching conceptual dichotomies of household research in India (e.g., nuclear versus joint, modern versus traditional, Westernization versus Sanskritization). Moving forward, a more thorough approach to household change in India will require determining why households normally grow to a permanent stem or joint level in some locations or socioeconomic strata but not in others, or else why complex households split at varying rates in different subpopulations and at different periods. An exhaustive study of these spatiotemporal variations will necessitate a combination of ethnographic and longitudinal data on the precise timing and sequencing of residential events.

In line with recent studies in the comparative and historical literature on households (e.g., Demont and Heuveline 2008; Szoltysek et al. 2011), this paper also shows that modernization is best conceived as a multifaceted, not unidirectional, process. The key tenets of the modernization hypothesis, such as urbanization or industrialization, reveal as much as they conceal. For example, urbanization alone connotes several definitions, such as rural exodus of the youth, rising housing costs in cities, the spread of urban culture and individualism – all of which may have different impacts on the rural-urban gap in household composition. Modernization remains a legitimate starting point to study household change, but must be conceptualized and contextualized with more precision before its impact on living arrangements can be properly assessed.

Appendix

To further evaluate findings from the NSS data, I replicate my results using two other large-scale, nationally representative surveys on Indian households: the National Family and Health Survey (NFHS), held between 1992-93 and 2015-16, and the Indian Human Development Survey (IHDS), held between 2004-05 and 2011-12. The NFHS has a time frame and sample size similar to those of the NSS, but does not contain information on the living arrangements of elderly couples not residing with a woman of reproductive age. By comparison, the IHDS has a much smaller sample size and time frame than both the NSS and the NFHS, but includes a small random sample of elderly couples.

There is one key divergence between the three datasets. This difference is consistent over time: among young couples (husband between ages 30 and 39), the average prevalence (over all survey years) of nuclear households is much higher in the NSS (59.6%) than in the NFHS (49.6%) and the IHDS (46%). By comparison, among elderly couples (husband aged 65 and over), the average prevalence of nuclear households is very similar between the NSS (35%) and the IHDS (35.3%). It remains unclear why the NSS provides a comparatively higher estimate of the prevalence of nuclear households at younger ages; differences in sampling frame, or differences in how enumerators have delineated households (although all three datasets use virtually identical definitions of the household) are likely at play.

Nevertheless, neither the NFHS nor the IHDS show a strong trend toward household nucleation among young couples during the past decades. This is consistent with findings obtained using the NSS data. Using the NFHS data, I estimate that the prevalence of nuclear households among young couples went from 46.5% in 1992-93 to 47.6% in 2015-16. By comparison, using the IHDS data, I estimate that the prevalence of nuclear households decreased

from 47.8% in 2004-05 to 44.1% 2011-12. The IHDS data also shows that the prevalence of nuclear households among elderly couples increased from 32.7% in 2004-05 to 37.8% in 2011-12, which is similar to the NSS' estimates at older ages.

Importantly, the NFHS and IHDS show a strong negative association between education and the prevalence of nuclear households among young couples, and this negative association is growing over time in both datasets, which is consistent with the NSS results. In the NFHS data, on average, the prevalence of nuclear households among young couples with less than a primary education is roughly 20 percentage points higher than that observed among their college-educated counterparts; this gap is virtually equal to the one measured in the NSS. By comparison, this gap is much larger (roughly 30 percentage points) in the IHDS data.

The NFHS and the IHDS also do not show a strong urban-rural gap in the prevalence of nuclear households, which is in accord with findings from the NSS. Notably, in 2011-12, the IHDS shows that rural households are more predominantly nuclear than urban ones among both young and elderly couples.

Overall, these replications largely support findings obtained using the NSS data, but with an important nuance: the NFHS and NSS suggest that there are more stem and joint households than estimated in the NSS. Nevertheless, there is no evidence than stem and joint households are on the decline in India, nor that modernization clearly entails household nucleation among highly-educated urban elites.

[1] I provisionally define *joint* households as composed of a married couple with two or more of their married sons, and *nuclear* households as composed of a married couple alone or with their unmarried children only.

[2] The NSS specifies that: "when there is an aged father who does nothing but has an adult son who actually runs the management of the house, the old father might still be deemed to be the formal head. However, it should be left to the members of a household to decide upon whom they consider to be the head of the household" (Minnesota Population Center 2017). In other words, headship in the NSS may be insensitive to variations in intrahousehold dynamics.

[3] Defining temporary HJHs as limits of growth would be problematic, as it would require defining different limits of growth for different "normal" durations of postmarital coresidence. This first poses the problem of setting (arbitrary) cutoffs between various lengths of "normal" durations. Second, these measures of duration would be confounded by exogenous demographic factors and circular migratory movements between households (Pearlman et al. 2017).

[4] This is by no means a perfect measure of household change. Some parents may be dead before the marriage(s) of their son(s). Married sons may leave their parents' house shortly after marriage, but return later on, or else welcome their parents in their own house. Nevertheless, the ethnographic evidence suggests that a household, once its married members have separated, is much more likely to stay divided than to reform permanently (Attwood 1995).

[5] I carried out robustness checks using different age boundaries (from ages 25 to 45 for the younger age group, and ages 60+ to 70+ for the older age group); the results of these analyses remained substantively similar to those presented in later sections.

[6] To measure changes in the occupational structure, I divide all occupations into five broad categories. First are individuals declaring that they are either "self-employed" or "doing unpaid family work" in the agricultural sector; I categorize them as working on the family farm. Second are those declaring that they are either "self-employed" or "doing unpaid family work" in all sectors other than agriculture; I categorize them as working in the family business. Third are people declaring that they are working for daily wages or a salary. Fourth are those declaring to be either unemployed or inactive. Fifth are individuals who are retired with a rent or pension.

[7] In all three survey waves, an average of roughly 90% of young couples with less than a primary school degree declare that they have not migrated from their "last usual place of residence" (i.e., administrative unit), compared to 65% among college-educated people. This gap is even wider if we restrict the sample to those currently residing in a nuclear household (results available upon request).

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Table 1 – Definitions of Minimal Residential Units (MRUs) and Household Types

Type	Definition
MRU 1	A separated, divorced or widowed adult.
MRU 2	A lone parent with his or her unmarried child(ren).
MRU 3	A married couple without unmarried child(ren).
MRU 4	A married couple with unmarried child(ren).
Nuclear Household	A married couple with or without unmarried children.
Supplemented-Nuclear Household	A married couple with or without unmarried children, plus a widowed parent.
Stem Household	At most two married couples (with or without unmarried children) related by patrifiliation; can include additional MRU(s) of any type that do not increase the patrifiliative core.
Joint Household	At least three married couples (with or without unmarried children) related by patrifiliation; can include additional MRU(s) of any type.
Residual Type	Any household that is not nuclear, supplemented nuclear, stem or joint.

Table 2 – Selected Economic and Demographic Characteristics of Young Married Couples (Husband's Age: 30-39), India 1983-2009

	1983	1987	1993	1999	2004	2009
Urban Residence	0.25	0.24	0.26	0.27	0.27	0.29
Husband's Age	33.57	33.57	33.71	33.87	34.03	34.01
Wife's Age	28.27	28.46	28.80	29.19	29.45	29.58
Husband's Occupation						
Employed on Family Farm	0.32	0.29	0.27	0.26	0.26	0.24
Employed in Family/Own Business	0.17	0.19	0.20	0.21	0.26	0.24
Salary/Daily Labor	0.47	0.48	0.50	0.49	0.45	0.51
Unemployed/Inactive	0.04	0.04	0.03	0.03	0.03	0.01
Husband's Education						
Less than Primary	0.53	0.52	0.49	0.45	0.38	0.30
Primary Completed	0.29	0.29	0.29	0.28	0.33	0.34
Secondary Completed	0.12	0.13	0.15	0.18	0.20	0.25
University Complete	0.05	0.06	0.08	0.09	0.09	0.11
Wife's Education						
Less than Primary	0.76	0.74	0.69	0.63	0.56	0.47
Primary Completed	0.17	0.17	0.20	0.22	0.25	0.28
Secondary Completed	0.05	0.06	0.08	0.11	0.13	0.18
University Complete	0.02	0.03	0.03	0.05	0.06	0.08
N (unweighted)	33,920	38,105	35,279	37,232	38,487	30,326

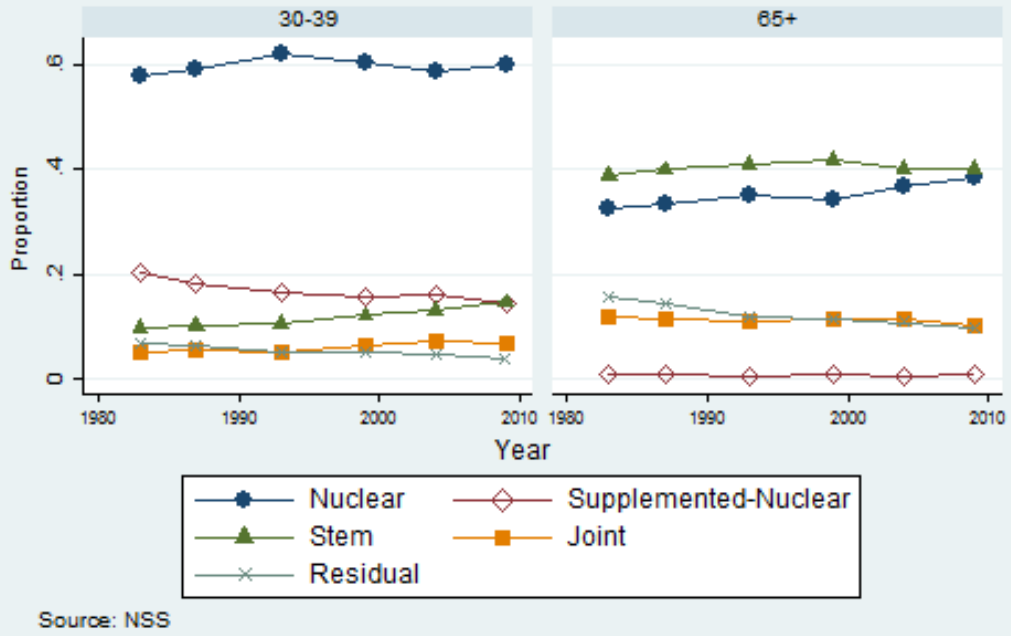
Notes: Estimates of means and proportions obtained using survey weights. Source: NSS

Table 3 – Selected Economic and Demographic Characteristics of Elderly Married Couples (Husband's Age 65+), India 1983-2009

	1983	1987	1993	1999	2004	2009
Urban Residence	0.20	0.21	0.22	0.24	0.24	0.28
Husband's Age	70.43	70.16	70.11	70.19	70.34	70.15
Wife's Age	60.55	61.01	61.90	62.59	62.94	63.24
Husband's Occupation						
Employed on Family Farm	0.32	0.34	0.34	0.31	0.32	0.28
Employed in Family/Own Business	0.12	0.11	0.12	0.10	0.11	0.10
Salary/Daily Labor	0.09	0.10	0.10	0.10	0.08	0.11
Unemployed/Inactive	0.42	0.38	0.33	0.38	0.32	0.28
Retired with Rent or Pension	0.05	0.08	0.10	0.12	0.17	0.23
Husband's Education						
Less than Primary	0.78	0.75	0.74	0.69	0.64	0.57
Primary Completed	0.17	0.18	0.18	0.18	0.21	0.22
Secondary Completed	0.04	0.05	0.06	0.09	0.11	0.14
University Complete	0.01	0.02	0.02	0.04	0.05	0.07
Wife's Education						
Less than Primary	0.92	0.91	0.88	0.86	0.82	0.75
Primary Completed	0.07	0.07	0.09	0.10	0.13	0.17
Secondary Completed	0.01	0.01	0.02	0.03	0.04	0.06
University Complete	0.00	0.00	0.00	0.01	0.01	0.02
N (unweighted)	7,872	9,086	8,146	9,934	10,365	8,657

Notes: Estimates of means an proportions obtained using survey weights. Source: NSS.

Figure 1 - Trends in Household Composition by Husband's Age, India 1983-2009



Source: NSS

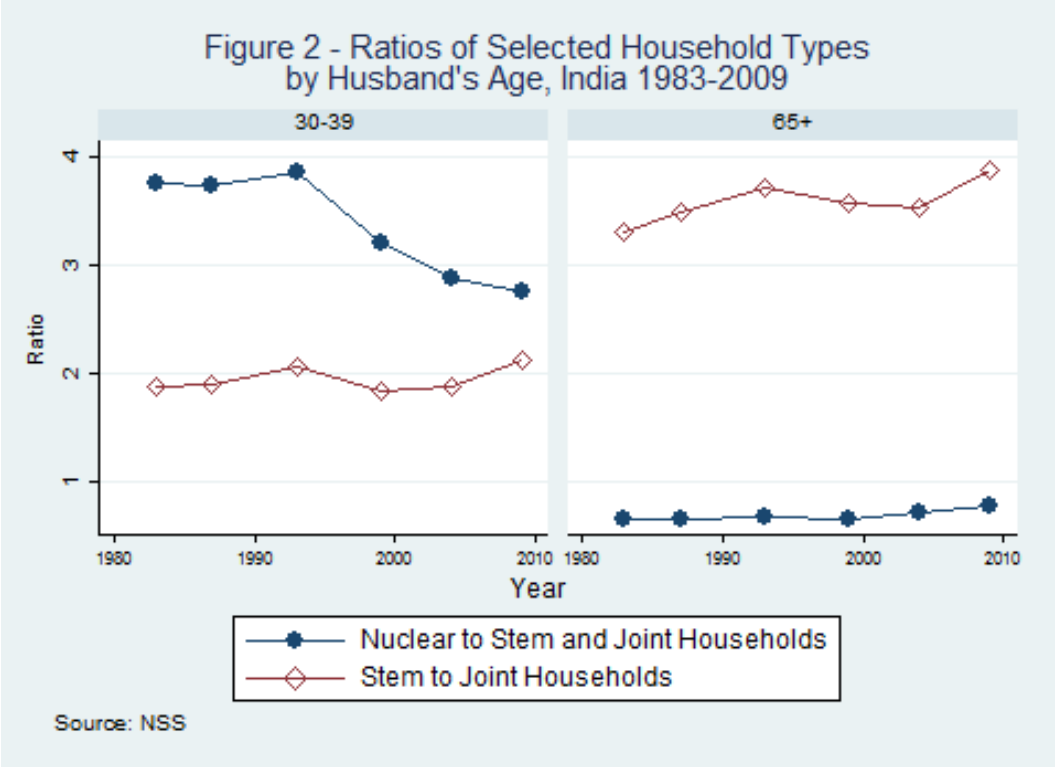
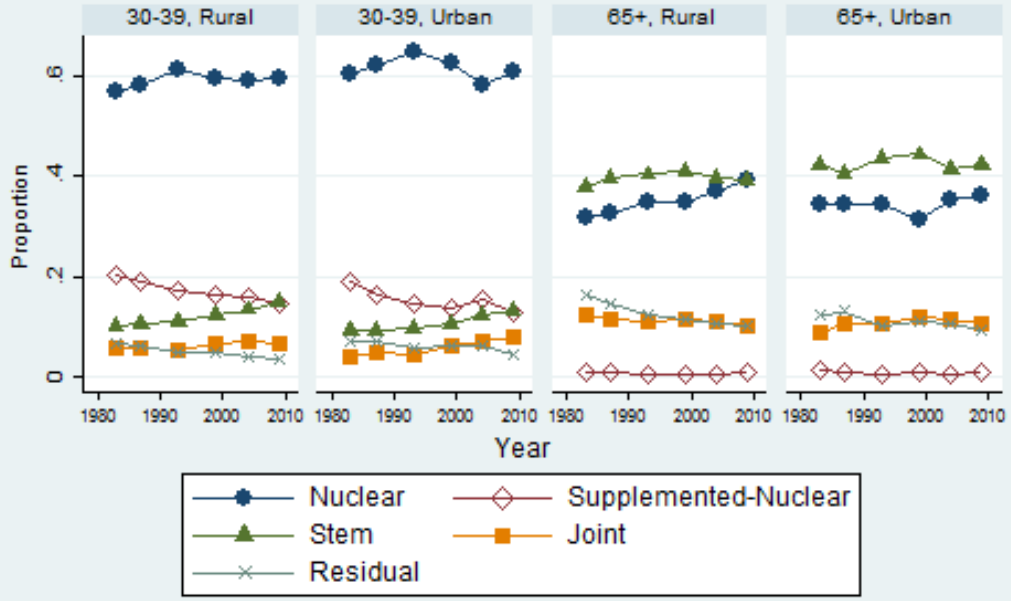


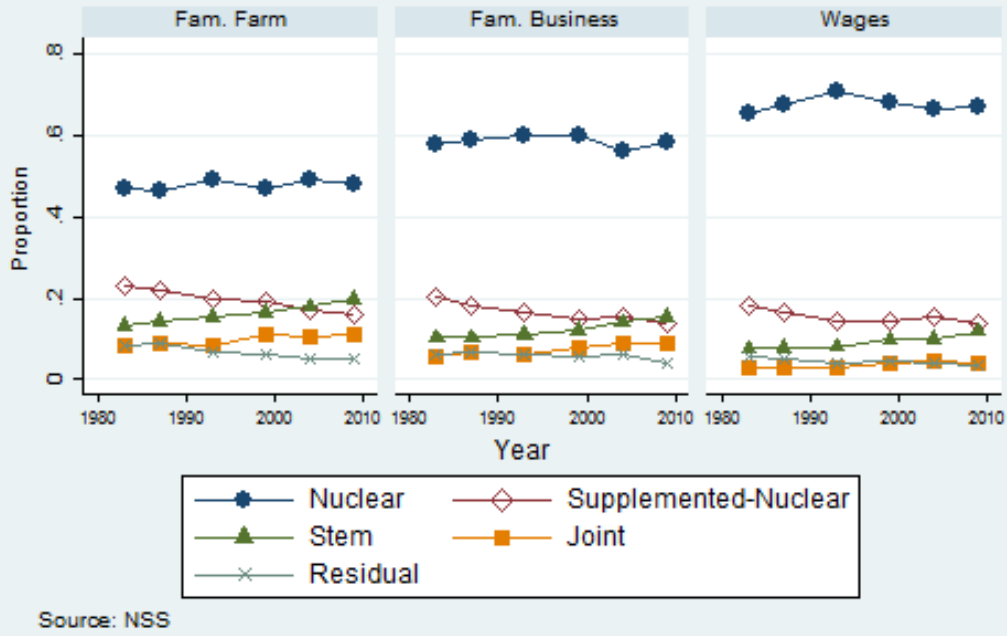
Figure 2 - Ratios of Selected Household Types
by Husband's Age, India 1983-2009
30-39
65+
Ratio
1
2
3
4
1980
1990
2000
2010
Year
Nuclear to Stem and Joint Households
Stem to Joint Households
Source: NSS

Figure 3 - Trends in Household Composition by Place of Residence and Husband's Age, India 1983-2009



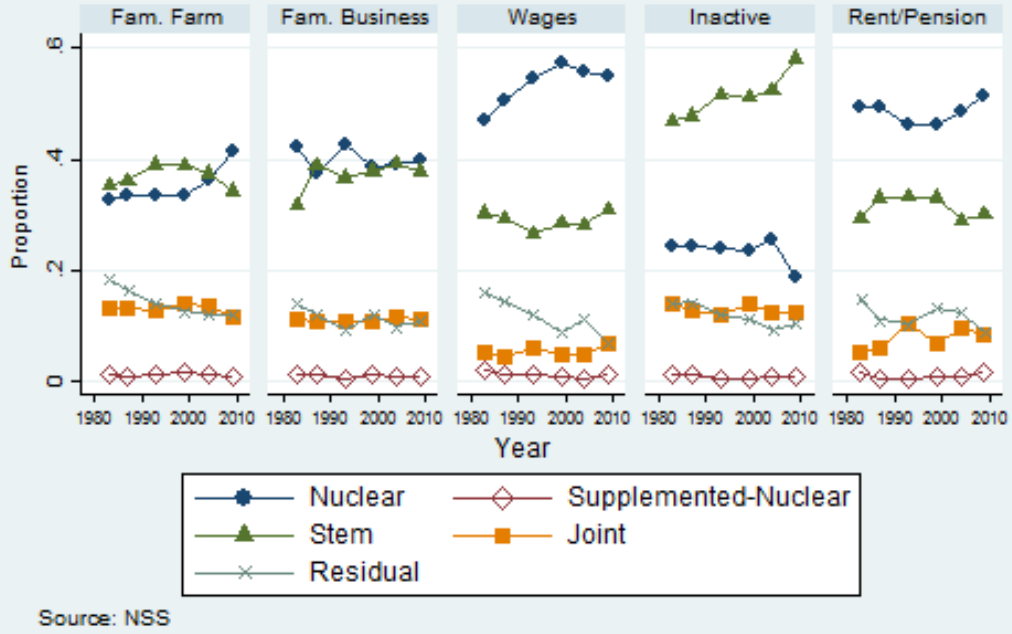
Source: NSS

Figure 4 - Trends in Household Composition for Young Couples by Husband's Occupation, India 1983-2009



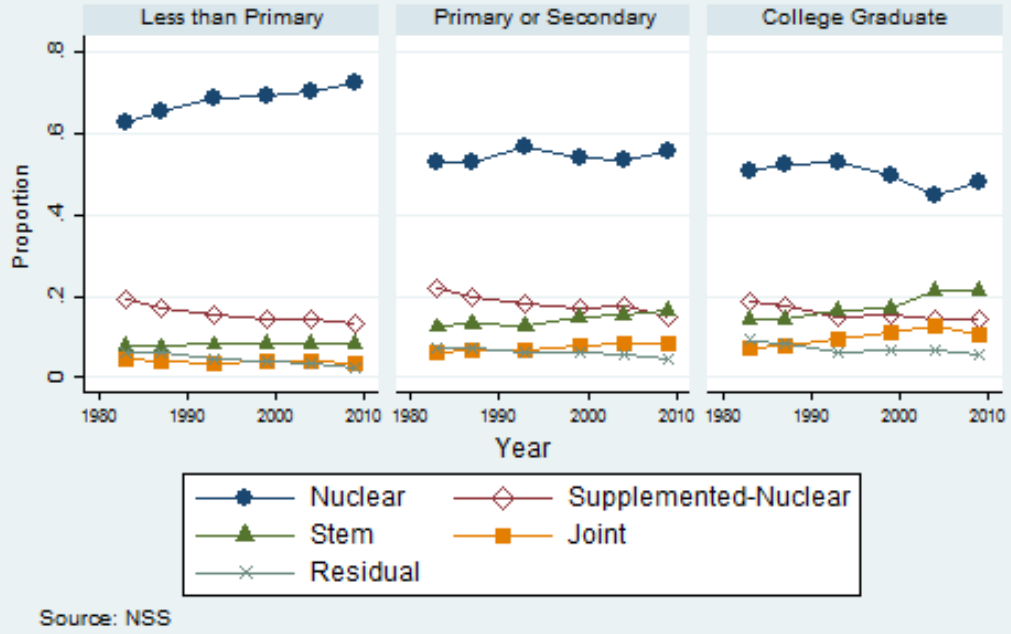
Source: NSS

Figure 5 - Trends in Household Composition for Elderly Couples by Husband's Occupation, India 1983-2009



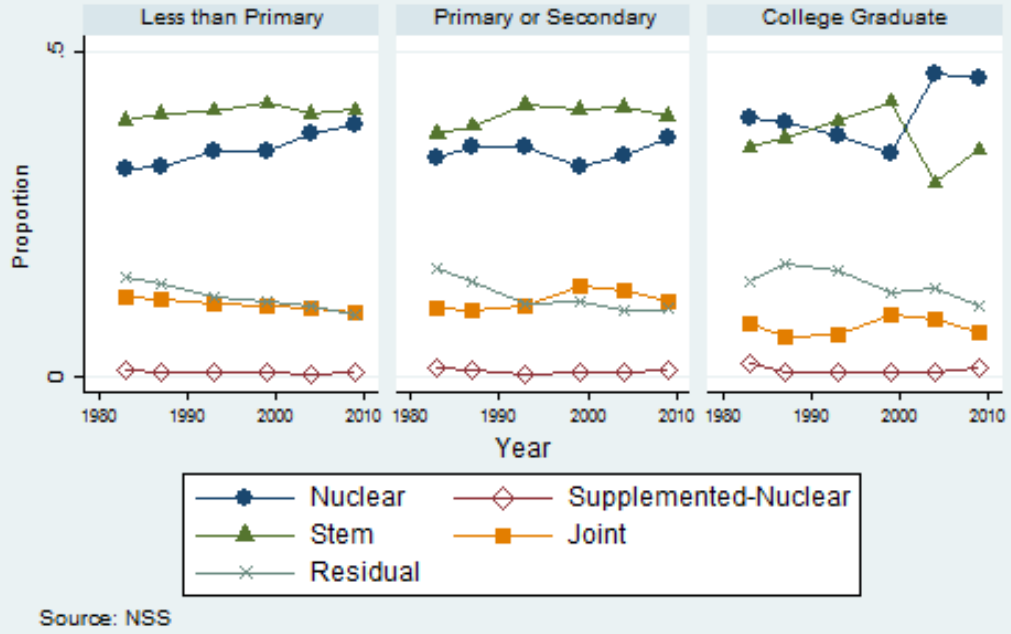
Source: NSS

Figure 6 - Trends in Household Composition for Young Couples by Husband's Education, India 1983-2009



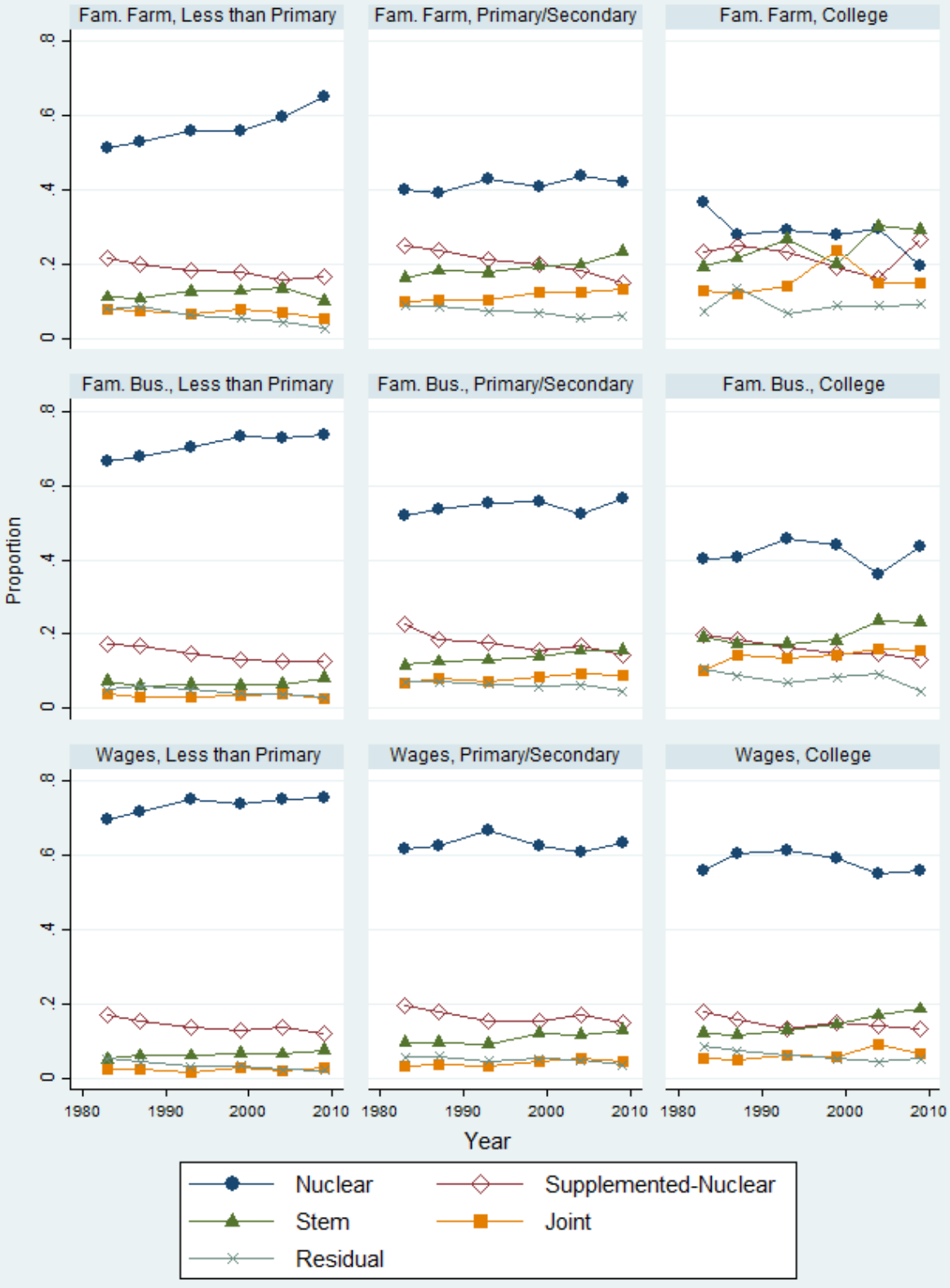
Source: NSS

Figure 7 - Trends in Household Composition for Elderly Couples by Husband's Education, India 1983-2009



Source: NSS

Figure 8 - Trends in Household Composition for Young Couples by Husband's Occupation and Education, India 1983-2009



Source: NSS